CLAIMS

All pending claims of the Application are shown below.

1. (Withdrawn) A distillation system for recovering acetic acid from water during terephthalic acid production comprising:

a dehydration column having an overhead section;

at least one input feed stream containing acetic acid and water;

an entrainer; and

a condenser to separate the acetic acid from water.

2. (Withdrawn) The distillation system according to claim 1 wherein the dehydration column is an azeotropic dehydration column.

3. (Withdrawn) The distillation system according to claim 1 wherein the dehydration column an output bottom stream and an output overhead stream.

4. (Withdrawn) The distillation system according to claim 3 wherein the output bottom stream has a higher acetic acid concentration that the at least one input feed stream.

5. (Withdrawn) The distillation system according to claim 3 wherein the output overhead stream has a lower dilute acetic acid concentration than the at least one input feed stream.

6. (Withdrawn) The distillation system according to claim 1 wherein the condenser condenses a vapor from the overhead of the dehydration column to generate a low pressure steam.

7. (Withdrawn) The distillation system according to claim 6 wherein the low pressure steam generated has a pressure of at least 0.6 kg/cm^2 abs.

8. (Withdrawn) The distillation system according to claim 6 wherein the low pressure steam generated has a pressure from 0.7 kg/cm^2 abs to 2.0 kg/cm^2 abs.

9. (Withdrawn) The distillation system according to claim 1 wherein the entrainer is N- butyl acetate.

10. (Withdrawn) The distillation system according to claim 1 wherein the entrainer is I-butyl acetate.

11. (Withdrawn) The distillation system according to claim 1 wherein the entrainer is a mixture of N-butyl acetate and I-butyl acetate.

12. (Withdrawn) The distillation system according to claim 1 wherein the distillation column has an overhead pressure of at least 1.2 kg/cm^2 abs.

13. (Withdrawn) The distillation system according to claim 1 wherein the distillation column has an overhead pressure greater than 1.2 kg/cm^2 abs.

14. (Previously Presented) A distillation method for recovering acetic acid from water during the production of terephthalic acid, the method comprising;

providing an input feed stream of water containing acetic acid;

distilling the input feed stream in an azeotropic dehydration column having an overhead section into a vapor stream, the dehydration column operating at greater than ambient pressure;

entraining the vapor;

condensing the vapor stream to a liquid having an organic component and a water component, the organic component separable from the water component through phase separation; and

outputting a bottom stream having a higher acetic acid concentration than the input feed stream and an output overhead stream having a more dilute acetic acid concentration than the input feed stream.

15. (Original) The distillation method according to claim 14 wherein the entraining step uses N-butyl acetate.

16. (Original) The distillation method according to claim 14 wherein the entraining step uses I-butyl acetate.

17. (Original) The distillation method according to claim 14 wherein the entraining step uses a mixture of N-butyl acetate and I-butyl acetate.

18. (Original) The distillation method according to claim 14 wherein the condensing step generates a low pressure steam.

19. (Original) The distillation method according to claim 18 wherein the low pressure steam is at least 0.6 kg/cm^2 abs.

20. (Original) The distillation method according to claim 18 wherein the low pressure steam is from 0.7 kg/cm^2 abs to 2.0 kg/cm^2 abs.

21. (Currently Amended) The distillation method according to claim 14 wherein the overhead section ~~distilling step~~ has an overhead pressure of at least 1.2 kg/cm^2 abs.

22. (Currently Amended) The distillation method according to claim 14 wherein the overhead section ~~distilling step~~ has an overhead pressure of greater than 1.2 kg/cm^2 abs.